

CS106.1 Project Documentation

Library Information System

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# Project Description

## Goals and Objectives

The Library Information System (LIS) project aims to create a system that creates a much more efficient and streamlined workflow in all in-house functions of a library, including member management, book transactions (borrowing and returning), and bookkeeping (replacement and addition of new books). The system enhances the efficiency of library employees and members, providing a catalogue and information to members to give an index to their borrowing decisions as well enhance User Experience. The system enables library staff to maintain an up-to-date record, ensuring that members have access to the latest information.

### Objectives

1. Design and develop a comprehensive system that manages all in-house functions of a library.
2. Perform basic library activities, such as member registration and management, book transactions, and bookkeeping.
3. Improve the efficiency of library employees and members.
4. Provide a catalogue and information to members to facilitate their borrowing decisions.
5. Allow library staff to maintain an up-to-date record to ensure members have access to the latest information.
6. Create a user friendly and enjoyable experience with good style, format and layout of functions, and rapid response of system.

### System Function

1. The system allows secure login for administrators and members.
2. The administrator can access and view books and members' information.
3. The administrator can add new books to the catalogue and modify existing records.
4. The administrator can add new members to the system and modify their personal information.
5. The system logs messages in a "due date" file whenever the due date for a loaned book is approaching.
6. The system logs messages in an "overdue" file whenever a book is returned past its due date.
7. Members can view the catalogue along with availability.
8. Members can pre-book books.
9. The system logs messages in a "return" file whenever a book is returned.
10. These features help the library to efficiently manage its resources and provide better service to its members.

## Timeline and Project Constraints

Due to the short timeline of only 2 days for the Library Information System (LIS) project, there are several potential areas where the lack of time for testing and iterative design could affect the quality, credibility, and reliability of the proposed ideas for addressing the project's problems and needs.

These concerns which may affect the project are…

1. Lack of thorough testing: there may not be enough time to thoroughly test the system, which could lead to issues that go unnoticed.
2. Incomplete or insufficient requirements: it may not be possible to fully identify and document all of the functional and non-functional requirements for the system, which could result in missing or incomplete features.
3. Limited opportunity for iterative design: it may be difficult to iterate on the design and make improvements based on feedback or testing. This could result in a less optimal user experience and user interface.
4. Inability to identify all potential design problems: it may be difficult to identify all potential design problems and areas for improvement, which could impact the quality of the final product.

To address these issues, it may be useful to focus on testing and refining the most critical requirements first. It can also help to seek feedback from users early in the process to identify potential issues and guide design decisions.

## Responsibilities

As the sole team member tasked with creating the Documentation for the Library Information System widget application, I am responsible for fulfilling the following roles:

1. Project Manager: Manage the project by defining its goals and objectives, creating a timeline, and assigning roles and responsibilities to team members.
2. Software Architect: Select the appropriate software process model based on the project goals and constraints and explain the reasoning to the team.
3. Developer/Programmer: Select the right tools, technologies, IDEs, and programming languages that meet the project's requirements and constraints.
4. Quality Assurance (QA) Engineer: Create testing plans and protocols to ensure the software meets the requirements.
5. User Experience (UX) Designer: Design the UI/prototype for the software system, including sketches, wireframes, and hi-fi prototypes.
6. Requirement Analyst: Analyse and document the functional and non-functional requirements, organize and prioritize them, and obtain formal approval from the client or tutor.
7. User Researcher: Conduct user research by using techniques such as interviewing and ethnographic research to elicit requirements from clients and create user stories and scenarios.

## Software Process Model

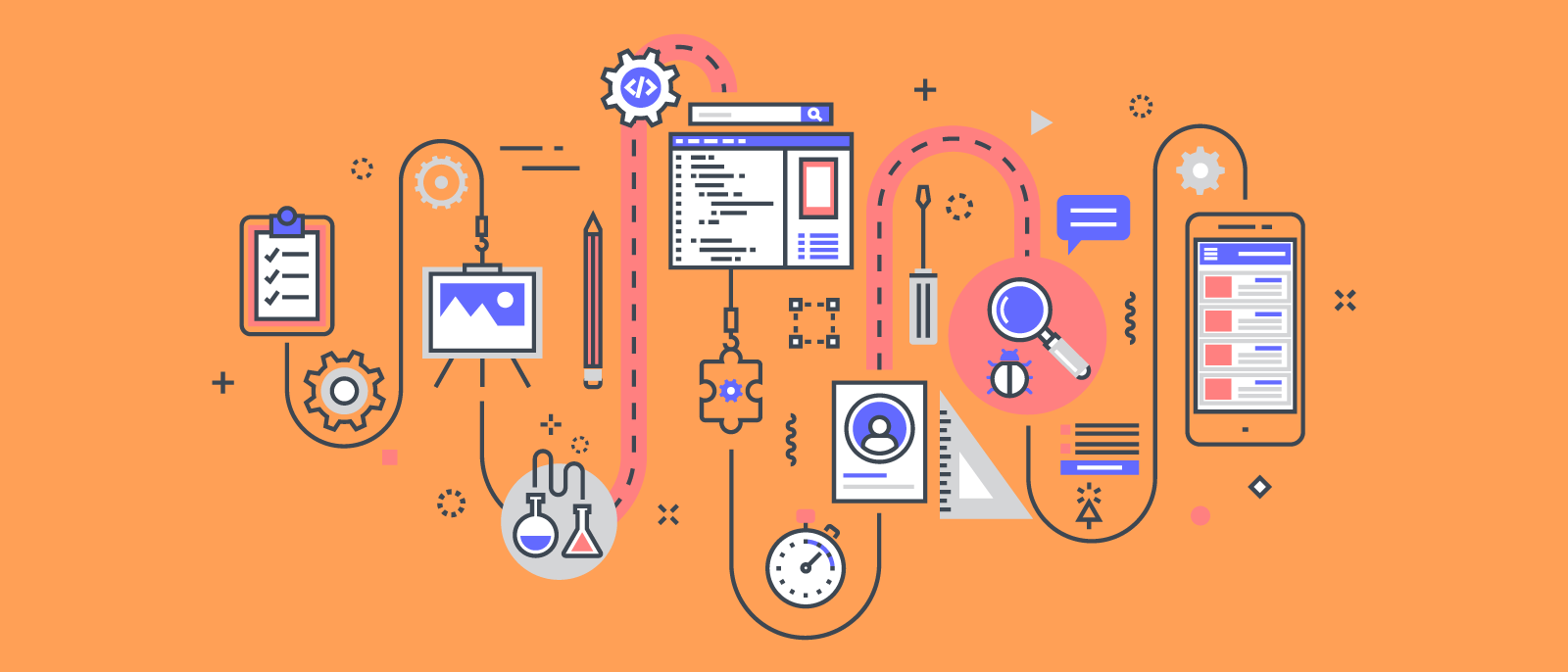
In order to complete the Library Information System (LIS) project within the tight timeline, I will be utilizing a combination of fast software process models, including Rapid Application Development (RAD), Kanban, and Agile methodologies. These process models are well-suited for fast-paced, iterative development and emphasize, flexibility, and continuous improvement.

These Software Process Models are…

1. Using RAD, an agile software development approach, is ideal for a short timeline project, as it focuses on rapid prototyping and iterative design to quickly produce a functional product.
2. Implementing Kanban, a project management method that uses visual cues to represent work items and their progress, will promote continuous delivery, reduce work in progress, and help to ensure the project is completed on time.\
3. The Agile Methodologies that I will be inheriting in the duration of the project is Scrum and Lean are popular agile methodologies. Scrum emphasizes collaboration, flexibility, and rapid iteration through breaking down the project into manageable tasks and working in sprints. This allows for continuous refinement and daily meetings ensure progress. Lean emphasizes continuous improvement and waste reduction by eliminating unnecessary processes to make development more efficient. It prioritizes delivering value to the customer.

## Tools

|  |  |
| --- | --- |
| Word - It will be used for documentation of progress and analysis which will explain the decisions made during the project timeline. | Microsoft Word Logo, symbol, meaning, history, PNG, brand |
| ToDoist - It will be used as a task and project management tool to create, organize, prioritize, and track tasks and goals which is helpful for organizing project workflow and track progress. | todoist-logo |
| Draw.io – It is tool which creates diagrams such as use case diagrams and flowcharts, to help visualize the structure and architecture of the functionality of the Library Information System. |  |
| Figma – Is a prototyping software which allows to create low-fidelity (lo-fi) and high-fidelity (hi-fi) prototypes of the user interface for the widget application. This tool will help in creating a visual representation of the system design and gather feedback from potential users. | Product Interview: (Hypothetical) Figma is losing customers at 6–7% weekly.  Figure out the reason & prioritize solutions. | by Vinit Mahale | Bootcamp |
| QT Creator – Is an IDE which will be used to build the widget application for the Library Information System. This is an integrated development environment (IDE) that will provide a suite of tools to facilitate software development. | Download Qt Creator for Mac | MacUpdate |



# Software Requirements

## Requirements

Requirements

To ensure the success of the Library Information System project, it's important to identify and document the functional and non-functional requirements of the system. Functional requirements outline what the system should do, while non-functional requirements describe how the system should do it.

Functional Requirements:

* The system should allow secure login for administrators and members.
* The administrator should be able to access and view books and members' information.
* The administrator should be able to add new books to the catalogue and modify existing records.
* The administrator should be able to add new members to the system and modify their personal information.
* The system should log messages in a "due date" file whenever the due date for a loaned book is approaching.
* The system should log messages in an "overdue" file whenever a book is returned past its due date.
* Members should be able to view the catalogue along with availability.
* Members should be able to pre-book books.
* The system should log messages in a "return" file whenever a book is returned.

Non-Functional Requirements:

* The system should load quickly and respond to user inputs rapidly.
* The system should have an intuitive and easy-to-use interface with easy-to-follow navigation.
* The system should have robust security measures to protect user data and prevent unauthorized access.
* The system should be able to handle a large number of users without experiencing performance issues.
* The system should provide users with clear feedback and guidance when errors occur.
* The system should provide a visually pleasing and engaging experience for users.
* The system should provide a seamless and uninterrupted experience.

User Experience Requirements:

* The system should provide users with an easy and enjoyable experience when browsing, borrowing, and returning books.
* The system should provide a clear and consistent visual design throughout the application.
* The system should be designed with the user's perspective in mind, making it easy for them to navigate and find what they are looking for.
* The system should provide users with clear instructions and guidance when performing tasks, such as searching for books or making reservations.

## Requirements Research

Asking questions on requirements is important to make sure that the product being created meets the needs and expectations of the users. It helps to identify and define the functional and non-functional requirements of the system and ensure that they accurately capture the needs and desires of the users for the success of the project by identifying what the system should do and how it should behave.

Collect users age, technology level, and literacy level then ask the following questions…

1. What challenges do you face when using the current library system?
2. Do you think the proposed system requirements meet your needs?
3. How do you think the l2ibrary system can be improved?
4. What features do you think are important in a library system?
5. What key features would you like to see in a Library Information System?
6. What are your preferences for the visual design and layout of the system?
7. What aspects of the system need to be easy to use?
8. Are there any security or privacy concerns you want to be addressed in the system?
9. How often do you plan to use the system, and what tasks do you expect to perform?
10. Are there any features from other library systems you would like to see in this system?
11. How important is it that the system is easy to learn and use, even for less tech-able users?
12. How much training or support do you think you will need to use the system effectively?

**Interviews are located in…** "[CS106\_LibraryManagementSystem\CS106.1 Interview\CS106.1 Requirements Ilicitations.txt](file:///C:\Users\marci\OneDrive\Desktop\CS106_LibraryManagementSystem\CS106.1%20Interview\CS106.1%20Requirements%20Ilicitations.txt)"

### Requirements Interview Summary:

1. What challenges do you face when using the current library system?

Users reported facing challenges using the current library system due to limited literacy and technological skills, complexity of layout, and difficulty in finding interesting books.

Solutions:

1. Do you think the proposed system requirements meet your needs?

Most users felt that the proposed system requirements met their needs, but some expressed concerns about the security of their data and the regulation of admin access.

1. How do you think the library system can be improved?

Users suggested that the library system could be improved with more visual aids, a user-friendly interface, and a better recommendation algorithm.

1. What features do you think are important in a library system?

Important features in a library system, as reported by users, include a simple and easy-to-use interface, clear instructions, a well-designed interface, personalized recommendations, and good customer support.

1. What key features would you like to see in a Library Information System?

Key features that users would like to see in a Library Information System include a clear and easy-to-use search function, a wish list or reading list, the option to leave reviews or ratings for books, the ability to reserve a book so that it is available when returned, and easily finding similar books.

1. What are your preferences for the visual design and layout of the system?

Users generally prefer a simple, modern, visually pleasing design that is colourful, engaging, and has pictures of books. They also value simplicity and ease of use.

1. What aspects of the system need to be easy to use?

Aspects of the system that need to be easy to use include login and search functions, as well as search and reserve functions.

1. Are there any security or privacy concerns you want to be addressed in the system?

Users expressed varying degrees of concern about security and privacy. Some had no concerns, while others wanted robust security measures to protect their data from both the admin and external threats.

1. How often do you plan to use the system, and what tasks do you expect to perform?

Users expect to use the system on a monthly basis, primarily for searching and recommendations, with some planning to regularly borrow and reserve books. Some users also want access to new arrivals and popular books for specific age groups or genres.

1. Are there any features from other library systems you would like to see in this system?

Most users desired the ability to view popular, new, and recommended books based on their reading history.

1. How important is it that the system is easy to learn and use, even for less tech-able users?

Users expressed varying needs for training and support to use the system effectively, with some needing significant help, including visual aids and clear instructions, while others only needed minimal assistance.

1. How much training or support do you think you will need to use the system effectively?

Although most users reported not needing assistance in using the system, those with limited technology or literacy skills expressed concerns regarding their ability to navigate the application. These users preferred either clear instructions or a simple interface to make navigation easier

### Solutions + Additional Requirements:

The following is the solutions and additional requirements thought of by the Software Engineering team to address concerns and problems gathered from the user elicitation. They are…

* Implementation of a simple and predictable user-friendly interface layout
* Addition of a 'favourites' or 'popular books' section on the home page
* Incorporation of a genre system to better help users find similar books.
* Addition of security questions and passwords to be entered for access to user accounts, as well as a security question for both users and admins to prevent unwanted access.
* Addition of a password recovery function through email input
* Use of visual aids, including predictive and well-known icons, to aid in finding desired functions.
* 'For You' section or page for individual users, based on their most recently read books.
* Provision of personalised recommendations, customer support, a search function, a reservation function, a reading list, and the ability to review or rate previously read books.
* Development of a simple, user-friendly, and colourful design, which is preferred by most users.
* Easy-to-use login, search, and reserve functions to streamline the process of finding and borrowing books.
* Censoring of passwords when being entered, as well as requiring passwords and security questions before accessing any user accounts.
* Scalability of the system to accommodate varying user activity levels.
* Use of icons to guide users in using the system, particularly those with low literacy skills."

## Classification and Organisation

Member Requirements:

Functional Requirements

* Members should be able to log in and log out of their account using their email and password.
* Members should be able to create an account by visiting the Christchurch Library and talking to a staff member to add their account into the system using an Admin account
* Their account must be secured with security questions and censoring password inputs.
* Members should only be able to manipulate their own data and no one else including admins (Admins can only manipulate user data with the users permission by asking for password or security questions).
* Members should be able to view books statuses that their viewing.
* Members should be able to view information catalogue of a book that their viewing.
* Members should be able to reserve books in the library.
* Members should be helped to able to find books they would find enjoyable.
* Members should be able to give rating and reviews on books that they have loaned in the past.
* Members should be able to file for customer support whenever they encounter a problem.
* Members should be able to update their account details.
* Members password entry should be censored when being entered.

Non-Functional Requirements

* Members should provide users with an easy and enjoyable experience when browsing, borrowing, and returning books.
* Members should find it easy to navigate the application, accommodating for less experienced and technologically or literacy challenged users.

Admin Requirements:

Functional Requirements

* Admins should be able to log in and out of their account using their email and password (as well as security questions to prevent ).
* Admins should be able to create new member accounts using their email and password. (other data that will also be collected are name, age, and phone number and a security question and answer).
* Members password entry should be censored when being entered.
* Admins should be able to view members information such as userID, name, age, email, phone number at all times.
* Admins should be able to modify these information including password and security question and answer only when provided with permission by the member in the form of their password or security question answer.
* Admins should be able to view books statuses in the library.
* Admins should be able to add, delete and modify a books information in the library.
* Admins should be able to view reports made by members.

Non-Functional Requirements

* Admins should be provided with User Instructions to help members make an account and navigate their tools.
* Admins should find it easy to navigate the application, accommodating for less experienced and technologically or literacy challenged users.

System Requirements:

Functional Requirements

* The system must prevent wrong inputs for every data collected from being stored from the system and return an error if so.
* The system cannot allow admins to admit a user below 18 to register as adults are the only ones allowed to be registered as a Library Member (kids must use their parents/guardians account to use library application).
* The system should only allow the security questions length to only be 50 characters long and its answer to be 20 letters long only.
* The system should prevent admins from modifying members account information without members permission in the form of password or security information.
* The system should log messages in a “due date” file whenever the due date for a loaned book is approaching of 3 days.
* The system should log messages in a “overdue” file whenever the due date for a loaned book is approaching.
* The system should log messages in a “return” file whenever a book is returned.
* The system should store books information of name, author, status, and information/catalogues to show to users.
* The system should limit the amount of books allowed for the user to loan and reserve to only five each.
* The system should provide an email system to contact users as well as recover forgotten passwords.
* The system should use visual aids such as large icons to help those literacy and technologically challenged.
* The system should provide a for you/popular at the home page which can be managed and changed by the admins.
* The system should allow members to rate and give reviews to books.
* The system should log messages of members needing assistance in “help” file whenever a member logs a message to customer support.

Non-Functional Requirements

* The system should load quickly and respond to user inputs rapidly.
* The system should have an intuitive and easy-to-use interface with easy-to-follow navigation.
* The system should have robust security measures to protect user data and prevent unauthorized access
* The system should be able to handle a large number of users without experiencing performance issues.
* The system should provide users with clear feedback and guidance when errors occur.
* The system should provide a visually pleasing and engaging experience for users.
* The system should provide a seamless and uninterrupted experience.
* The system should provide a clear and consistent visual design throughout the application.
* The system should provide users with clear instructions and guidance when performing tasks.
* The system should be colourful and User Friendly.
* The system should be scalable for future expansion of the system.

## Prioritisation and Negotiation

Due to the limited time and lack of staff resources, I had a meeting with my client to negotiate and prioritise what is needed the most for the function of the L.I.S.  
The following represents what was agreed upon to be kept and what was not.

### Final Requirements

Members Requirements:

* Members should be able to log in and out of their account using their email and password.
* Members should be able to create an account by visiting the Christchurch Library and talking to a staff member to add their account into the system using an Admin account
* Members should be able to update their information and no one else’s.
* Members should be able to view a books catalogue/synopsis, author, title, and status of the book if its either available, booked, or reserved.
* Members should be able to and take out books in the library.
* Members should be able to view recommended books from the library.
* Members should be able to log a message for customer support.
* Members should provide users with an easy and enjoyable experience when browsing, borrowing, and returning books.
* Members should find it easy to navigate the application, accommodating for less experienced and technologically or literacy challenged users.

Admins Requirements:

* Admins should be able to log in and out of their account using their email and password.
* Admins password input should be censored when being inputted for security.
* Admins should be able to create new member accounts using a user’s email and password. (other data that will also be collected are name, age, and phone number).
* Admins should be able to view the members information at all times except for their password.
* Admins should be able to modify members information only when given permission/member password to access account.
* Admins should be able to view the log file messages of txt files “due date”, “overdue”, “return”, and “help”.
* Admins should be able to return books in the library.
* Admins should be able to add and delete books in the library as well as edit its information/catalogue.
* Admins should be able to recommend books to members at the main page of the application.
* Admins should be provided with User Instructions to help members make an account and navigate their tools.
* Admins should find it easy to navigate the application, accommodating for less experienced and technologically or literacy challenged users.

System Requirements:

* The system must prevent wrong inputs for every data collected from being stored from the system and return an error if so.
* The system should not allow admins to admit a user below 18 to register as adults are the only ones allowed to be registered as a Library Member (kids must use their parents/guardians account to use library application).
* The system should prevent admins from modifying members data without their permission by making member input their password first before allowing admin to access their account.
* The system should limit the number of books a member can take out five books only at a time.
* The system should store books information of name, author, status, and information/catalogues to show to users.
* The system should automatically log messages in txt file named “due date” when a book has been loaned to keep track of books loaned.
* The system should automatically log messages in txt file named “overdue” when a book is overdue,
* The system should automatically log messages in txt file named “return” when” and admin has registered a book as returned.
* The system should log a message in the txt file called “help” when a member has reported for customer support.
* The system interface should use visual aids such as large icons to help those literacy and technologically challenged.
* The system should provide a for you/popular at the home page which can be managed and changed by the admins.
* The system should have an intuitive and easy-to-use interface with easy-to-follow navigation.
* The system should have robust security measures to protect user data and prevent unauthorized access.
* The system should provide a visually pleasing and engaging experience for users.
* The system should provide a seamless and uninterrupted experience.
* The system should provide a clear and consistent visual design throughout the application.
* The system should be colourful and User Friendly.

### Rejected Requirements and Reasons…

* Security Questions: This was rejected due to the tight time schedule.
* Members Password Censoring: Censoring members password input was deemed to give more difficulty to user than helpful.
* Book Reservations: Due to the tight time schedule and the complexity of implementation of reserving books.
* Review and Rating System on past Books: Due to tight schedule and amount of functions needed to be added, it will just add complexity that’s not needed at this time.
* Returning an error (difficult): due to less testing and iteration to go through, most errors are not going to be detected or fixed.
* Email System: Adding an email system will add another layer of complexity to the already tightly scheduled project.
* Scalability and Large user handling: due to limited time in testing, understanding and adding organisation for handling larger handling of users and books will be difficult in the tight schedule.
* “due date” txt file: due date file now contains all books that have been loaned so it’s easier to keep track of loaned books.

## Requirements Specifications (SRS)

The following provides an overview of the Library Information System(L.I.S.) and its purpose…

### Organised Requirements

Functional Requirements:

* The system should allow members and admins to log in and out of their delegated accounts using their individual emails and passwords (members sign in into a members account and admins log in to admins account).
* The system should allow members to modify/update their own information only.
* The system should allow members to keep track of books that they’ve loaned and its status.
* The system should protect admins password by censoring it when being inputted.
* The system should allow admins to view members information such as name, age,
* The system should allow admins to create new member accounts using a user’s email and password. (Other data that will also be collected are name, age, and phone number).
* The system should allow admins the ability to modify members information when given permission of member in the form of a password input. Without permission/password input from member, admin will be denied access into modifying information.
* The system should be able to contain a library of books containing its title, author, book cover, synopsis, and status.
* The system should allow an admin to add and delete new books into the library system by intaking information of book title, book cover/image, author, and catalogue/synopsis.
* The system should store and show recommended books in the main page managed by an admin.
* The system should allow admins to modify a books data and status at any time.
* The system should automatically log messages of name of member, book loaned to member, date loaned, expiry date of loan inside a text file called “due date” when a book is loaned to a member.
* The system should automatically log message of information in txt file “due date” of any books that’s overdue into txt file “overdue”.
* The system should automatically delete messages concerning any books that’s overdue in “due date” txt file.
* The system should automatically log messages of name of book and date returned in txt file named “return”.
* The system should also automatically delete messages concerning any books that’s has been returned in the “return” txt file out of the txt files “due date” and “overdue”.
* The system should also allow users to submit help reports by intaking the name of a user, email, phone number, and help message (of 200 characters max) and logging it into a txt file named “help”.
* The system should show the help requests of users in the administrators menu accessible by admins to be able to resolve (once resolved deleted from the list/txt file).
* The system should take all data in txt files and sort and categorise them in a database, showing in the form of a list in the application, categorised as “due date”, “overdue”, and “returned”.
* The system should allow admins to change the status of these books in the “due date” and “overdue” categories into returned and available again in status in the system.
* The system should allow members to be able to view a books title, author, catalogue/synopsis, and status if its either available or not.
  + If time allows it, add a reservation system…
* The system should allow members to loan a maximum 5 books at a time only and show it in their book list.
  + if time allows it, add a reservation maximum of 5 books…
* The system must prevent wrong inputs for every data collected from being stored from the system and return an error if so.
* The system should not allow admins to admit a user below 18 to register as adults are the only ones allowed to be registered as a Library Member (kids must use their parents/guardians account to use library application).

Non-Functional Requirements:

* The system should give members with an easy and enjoyable experience when browsing, borrowing, and returning books.
* The system should make it, so members and admins find it easy to navigate the application, accommodating for less experienced and technologically or literacy challenged users.
* Members and Admins should be given individual instructions to be able to navigate and properly use the tools of the Library Information System application.
* The system should have robust security measures to protect user data and prevent unauthorized access.
* The system should provide a seamless and uninterrupted experience.
* The system should provide a clear and consistent visual design throughout the application.

User Interface Requirements:

* usability, accessibility, appearance
* The interface should provide a visually pleasing and engaging experience for users.
* The interface should use visual aids such as large icons to help those literacy and technologically challenged.
* The Interface should be colourful and User Friendly.
* The interface should be intuitive and easy-to-use with easy-to-follow navigation.

Data Requirements:

Based on the functional requirements listed for the library information system, the following types of data will be handled:

* User data: This includes information about users such as their name, age, email, phone number, account type (admin or member), and password.
* Book data: This includes information about books such as title, author, book cover, synopsis, and status (available, on loan, overdue, or returned).
* Borrowing data: This includes information about book borrowing transactions such as the borrower's ID, the book's ID, the borrowing date, and the due date.
* Overdue data: This includes information about overdue book borrowing transactions such as the borrower's ID, the book's ID, the borrowing date, and the overdue date.
* Help data: This includes information about help requests submitted by users such as the user's name, email, phone number, and help message.
* Log data: This includes information that is automatically logged by the system such as the name of the member, book loaned to member, date loaned, expiry date of loan, name of book and date returned, and information about books that are overdue.
* Recommended book data: This includes information about recommended books managed by an admin.
* Reservation data: This includes information about book reservation transactions such as the borrower's ID and the book's ID.

Terms and Conditions for user to abide by:

Welcome to our library application! Before using our services, please read the following terms and conditions carefully. By using our library application, you agree to be bound by the following terms and conditions.

1. Personal Information Collection: As part of the registration process, we will collect your personal information including your name, email, phone number, and age. This information is required for us to provide library services to you, including borrowing and returning books. We will not disclose this information to any third-party without your prior consent, except as required by law.
2. Data Protection: The library application will take appropriate measures to protect user data from unauthorized access, loss, or misuse. However, the library application cannot guarantee the security of user data and users are responsible for taking their own precautions to protect their personal information.
3. Book Borrowing: We keep track of the books you borrow and their due dates. Please note that if you do not return borrowed books on time, you may be subject to late fees or account suspension. You are responsible for any lost or damaged books borrowed from our library.
4. Book Availability: While the library application will make every effort to ensure that books are available for checkout, there may be occasions where books are not available due to high demand or other circumstances. The library application cannot be held responsible for any inconvenience caused by book unavailability.
5. Account Access: We will not access your account without your permission, except as required by law. You are responsible for maintaining the confidentiality of your login details and password and are prohibited from sharing your login credentials with anyone else.
6. Contact Information: We require your phone number and email address for contact purposes related to your library account. We will only use this information to contact you about your library account, such as overdue books or reservation information. You may opt-out of receiving non-essential communication from the library application at any time.
7. User Conduct: Users are expected to conduct themselves in a respectful and courteous manner while using the library application. Any behaviour that is deemed inappropriate, offensive, or illegal may result in account suspension or termination, and may be reported to the appropriate authorities.
8. User Responsibility: Users are responsible for maintaining the confidentiality of their account information and are prohibited from sharing their login credentials with anyone else. Users are also responsible for all activities that occur under their account.
9. Fees and Fines: Users may be charged fees for late returns or lost books, and the library application reserves the right to suspend or terminate accounts for non-payment of fees. The library application will notify users of any outstanding fees before taking action against their account.
10. Changes to Terms and Conditions: The library application reserves the right to modify or update these terms and conditions at any time. Users will be notified of any changes to the terms and conditions and are expected to review and accept the new terms to continue using the library application. If you do not agree with the new terms, you may terminate your account.

System Model (Use Case Diagram)

Use case diagrams are essential for illustrating the interaction between the actors admin, member, and system, providing a clear overview of the system's functionality and ensuring all user requirements are met.

Diagram

Description automatically generated

Diagram

Description automatically generated Diagram

Description automatically generated



Prototyping

Lo-fi Wireframe

A Lo-fi wireframe is an essential part of designing a library information system widget application. It enables designers to sketch out the basic layout and functionality, identify any potential problems, and refine the design until it provides a smooth and satisfying user experience.

### Function

### Testing

## HiFi Prototype

### Functions

### Testing